Amendments to the Claims

Please amend claims 1-3, 6-8 and 11. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1.   (Currently amended) A method for transmitting information in a Mobile Internet Protocol (IP) network including a mobile node (MN), a base station (BS) and a home network, wherein a proxy mobile node (PMN) and a foreign agent (FA) are provided at the BS, and a home agent (HA) is provided at the home network, the method comprising the steps of:

the MN detecting the BS from a pilot signal broadcast from the BS;

the PMN identifying the MN from link layer messages that provide an identity of the MN to the BS;

the PMN retrieving an IP address for each of the MN, FA and HA from a database based on the identity of the MN, the MN not participating in Mobile IP registration;

the PMN generating and sending a registration request to the FA on behalf of the mobile node (MN);

the FA relaying the request to the HA;

the HA registering the proxy MN PMN identified with the MN;

the HA forwarding Mobile IP packet to the FA by encapsulating the information into at least one Mobile IP packet;

the FA unencapsulating the forwarded IP packet into original data; and

the FA forwarding the original data to the MN.

2.   (Currently amended) The method of claim 1 further comprising the steps of:

determining whether a new base station including a new proxy mobile node (PMN) is detected from a pilot signal broadcast from the new base station;

if it is determined that a new base station is detected,

    (a)   the MN transmitting link layer messages that provide the identity of the MN to the new BS;

    (b)   the new PMN identifying the MN from the link layer messages;

    (c)   the new PMN retrieving an IP address for the MN, a new foreign agent (FA), and the HA from the database based on the identity of the MN;

[[(a)]] (d)   the new PMN generating and sending a new registration request to ~~a new foreign agent (FA)~~ the new FA associated with the new BS on behalf of the mobile node (MN);

[[(b)]] (e)   the new FA relaying the new registration request to the HA;

[[(c)]] (f)   the HA registering the new ~~proxy MN~~ PMN; and

[[(d)]] (g)   the HA forwarding the Mobile IP packet to the new FA.

3.   (Currently amended) The method of claim 2 further comprising the step of acknowledging the registration of step [[(c)]] (f).

4.   (Original) The method of claim 1 wherein the MN comprises customer premise equipment (CPE) and a computer.

5.   (Original) The method of claim 4 wherein the CPE comprises at least one of a wireless radio, personal digital assistant (PDA) and a mobile telephone, T1 line, cable modem, digital subscriber line (DSL) and asymmetric digital subscriber line (ADSL) modem.

6.   (Currently amended) The method of claim 1 further comprising the step of storing additional information for the PMN in [[a]] the database wherein the additional information comprises:

    a home address which is an IP address of the MN;

    a foreign agent IP address which is an IP address of the FA;

a home agent IP address which is an IP address of the HA;

a care-of address which is an IP address for a destination for the information;

mobile-foreign security information which is a security association between the MN and the FA;

mobile-home security information which is a security association between the MN and the HA;

an identification field value for matching registration requests and acknowledgments;

a lifetime value for a number of seconds allowed from the registration before the registration is considered expired; and

a current lifetime value for a number of seconds remaining before the registration is considered expired.

7.   (Currently amended) A Mobile Internet protocol (IP) network comprising:

a home network;

a home agent (HA) provided at the home network;

a base station (BS) broadcasting a pilot signal;

a foreign agent (FA) provided at or associated with the BS;

a mobile node (MN) providing an ability to detect and identify itself to a BS, such that the MN detects the BS from the pilot signal broadcast from the BS and the MN identifies itself to the BS by transmitting link layer messages that provided an identity of the MN to the BS, the MN not participating in Mobile IP registration; and

a proxy mobile node (PMN) identifying the MN from the link layer messages, wherein the proxy MN [[is]] being provided at the BS;

wherein the PMN respectively retrieves an IP address for each of the MN, FA and HA from a database based on the identity of the MN, the PMN generates and sends a registration request to the FA on behalf of the mobile node, the FA relays the registration request to the HA, and the PMN is registered with the HA if the PMN identifies the MN, so that [[he]] the MN functionality is provided transparently to the MN by the PMN.

8.   (Currently Amended) The network of claim 7 further comprising:

        a new base station (BS) broadcasting a pilot signal;

        a new foreign agent (FA) associated with the new BS;

        a new proxy mobile node (PMN) provided at the new BS;

        wherein if the MN detects the new BS from the pilot signal broadcasted by the new BS, the MN transmits link layer messages that provide the identity of the MN to the new BS, the new PMN identifies the MN from the link layer messages, the new PMN retrieves an IP address for each of the MN, the new FA, and the HA from the database based on the identity of the MN, the new PMN generates and sends a new registration request to the new FA on behalf of the mobile node, the new FA relays the new registration request to the HA, and the new PMN is registered with the HA via the new FA if the MN detects the new BS.

9.   (Original) The network of claim 7 wherein the MN comprises customer premise equipment (CPE) and a computer.

10.   (Original) The network of claim 9 wherein the CPE comprises at least one of a wireless radio, personal digital assistant (PDA) and a mobile telephone, T1 line, cable modem, digital subscriber line (DSL) and asymmetric digital subscriber line (ADSL) modem.

11.   (Currently amended) The network of claim 7 further comprising a wherein the database storing stores additional information for the proxy MN PMN, wherein the additional information comprises comprising:

        a home address which is an IP address of the MN;

        a foreign agent IP address which is an IP address of the FA;

        a home agent IP address which is an IP address of the HA;

        a care-of address which is an IP address for a destination for the information;

        mobile-foreign security information which is a security association between the MN and the FA;

mobile-home security information which is a security association between the MN and the HA;

an identification field value for matching registration requests and acknowledgments;

a lifetime value for a number of seconds allowed from the registration before the registration is considered expired; and

a current lifetime value for a number of seconds remaining before the registration is considered expired.